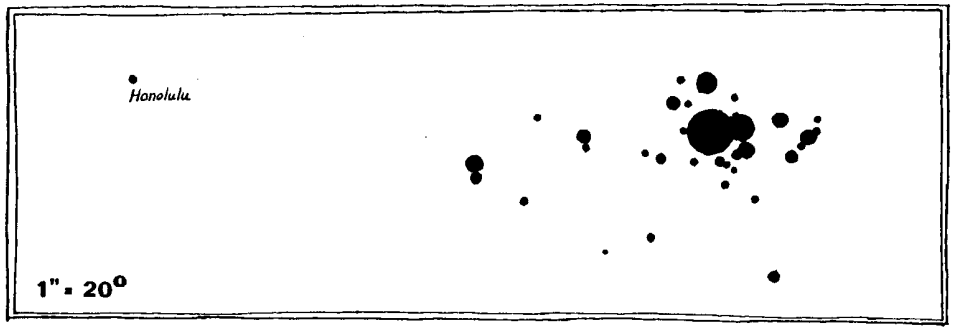
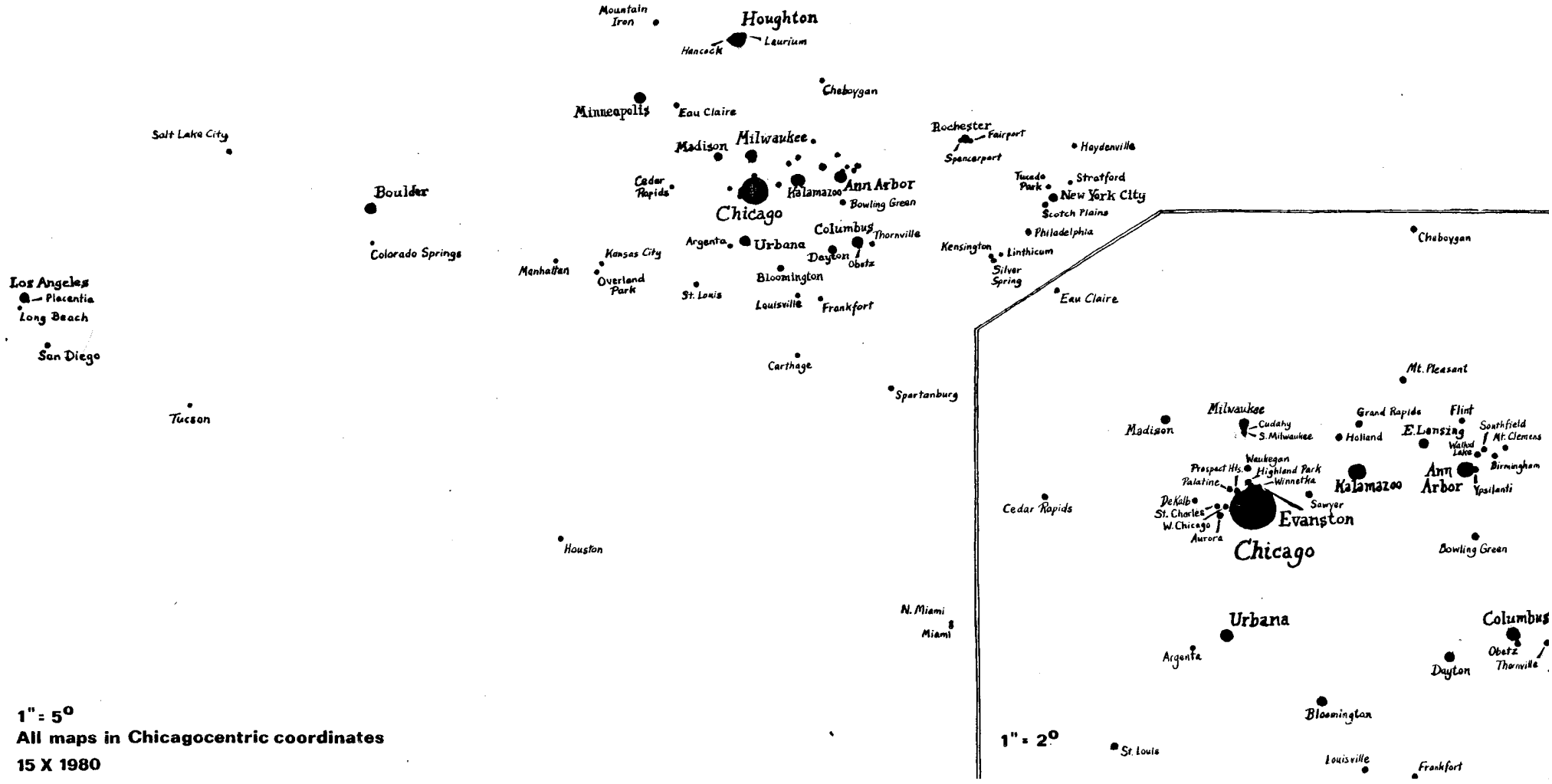
PyroTnuctipnics

PyroTechnics 26





PyroTnuctipnics

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Abe Dowdley	Sorceror's Apprentice
Jenny Corrigan	Chief Cook and Bottle Editor

SOMEWHERE IN DARKEST SUBURBIA

BILL LEININGER

In Prospect Heights, a wizened gnome sits hunched over a keyboard, his face strangely highlighted by the flickering glow of the CRT in front of him.

In west Chicago, a Physicist's sleep is disturbed by the thoughts of the many things he must do, must write, must draw, to bring about this thing.

In Chicago itself, the brooding metropolis, the editor (by day a mild mannered computer operator) must sit waiting for that fateful call, "It's all on the tape!". But if he waits, why doesn't he answer his phone?

In Champaign, people are sleeping, little suspecting what is to descend upon them in two short weeks

And in Evanston, in his third floor walk-up tower, the evil software wizard who had his chance for fame, and blew it, stares broodingly eastward from his balcony, over the storm-tossed surface of Lake Michigan towards Rochester.--What has caused all this activity?

The long awaited, half-mythical Chicago issue of Pyrotechnics! One Year in the making! Was it worth it? Let's look inside and find out..

This Pyro is the culmination of slightly over a year of serious consideration and apathy. In fact, the idea originally occurred to several of us shortly after Jeff moved to Rochester. "Well, now that he's no longer in Chicago, we can actually, legitimately do a special Chicago issue!"

What you see before you gentle reader, is the product of the Goldbergtronic text prcessing network. Yes, that's right, network. You see, we couldn't get all the right people together with all the right equipment, so we had to make do with the right people, some half-right people, and all the wrong equipment in the so-so places we could get our hands on. So now you know why this issue took so long.

Produced in such exotic climes as Prospect Heights, Champaign- Urbana, West Chicago, Evanston, and Scotch Plains, New Jersey. Scotch Plains, New Jersey? Well, that's right. We got a cover from Greg Ruffa that was so good, we just couldn't turn it down.

As you look at our cover, it is a map (or "star chart") showing the locations of all GT'ers as of mid-August, 1980, with the size of the points representing the relative number of members in each place. So that's why Chicago is so large.

SHUTTLE BLUES

DOUG VAN DORN

This space, I am given to believe by reading what has appeared in it over the past several issues, is reserved for polemics on whatever the editor feels like railing about. I am going to be no exception here. I want to talk about one of my best loves and pet peeves--the space program. It is, as I write this, already November of 1980, a full year and a half past the launch date for the space shuttle. That launch date is now set for March of next year, two years behind schedule. Why has this happened, and what can be done to keep something like it from happening in the future?

First, the problem lies in NASA and its inability, 10 years ago, to look forward and see possible side-effects of decisions that were being made then. The decision to go ahead with the concept of the Space Shuttle that we have ended up with, thinking it could be based on current technology, was erroneous. The fact of the matter is we did not have the technology to produce throttlable million-pound-thrust engines that burn liquid hydrogen and liquid oxygen. We are barely beyond that ability now, and two lives will be riding on our success in that field in March.

In addition, the ceramic tile approach to heat shielding may seem ahead of its time, but our technology in ceramics isn't. My brother, who works for NASA testing the tile materials, warns me that a good, strong thunderstorm will leave that tile surface so pitted as to be worthless. Astronaut F. Story Musgrave admitted this fault in the tiles, saying plans have been made to fabricate a huge "baggy" to put over the shuttle orbiter while it sits on the pad, protecting the tiles from the elements.

GT GENERAL TECHNICS GT

is an organization of fannish techies (and not techish fannies, as some wiseass reported) who pool information, resources, and experiences in pursuit of a good time and an occasional profit. The group meets irregularly at cons, hamfests, and private Berserker Weekends.

BECOMING A MEMBER assumes you're willing to contribute to the group. This entails answering questions (at the very least) by phone or SASE, concerning your own personal areas of expertise. So that people know what those areas are, you must submit a completed questionnaire and be listed in the General Technics Information Handbook. To obtain a questionnaire, send an SASE to:

Jeff Duntemann
301 Susquehanna Road
Rochester, NY 14618

That done, return the questionnaire, a quantity of first-class stamps, and one American dollar bill. You will receive PyroTechnics until your stamps run out.

"Expertise" is used loosely; strong interest and enthusiasm count for more than an advanced degree. Knowing where to look for something is almost as good as knowing it. The type of tech doesn't matter. It runs from microcomputers at one end of the scale to hand looms and trebuchets at the other...

But the tiles are finally on the spacecraft (well, most of them), and what seems to be a firm launch date has been set, so everything is all right now. Or is it? NASA has lost contracts because of the shuttle's failure to hold to its development schedule. Missions have had to be rescheduled for shuttle flights years after the plans called for. A new orbital tracking system has been postponed, even while users of the system are sitting on top of billions worth of hardware that is useless until the relay satellites are operational.

Perhaps hardest of all, the inability of NASA to keep the shuttle on time and on budget has hurt the planetary efforts. There are no new starts for planetary probes this year. There were no new starts at all this year. Or last year. In fact, the last new start was for the Galileo probe slated for Jupiter, and even that has had to face budget cutbacks and a launch slip, both due to shuttle developmental problems.

The NASA solution to all problems has been, "get something that will cover the hole," not "get something that will stop the hole from forming." NASA administrators have been running a reactionary business, taking such steps as are needed to correct existing problems but putting little if no priority on sniffing out problems before they become problems. Since the current NASA chief, Frosch, is resigning, Reagan will probably have the opportunity to appoint his successor. It might be a good time to write the President-elect, spell out your support for an expanded space program and detail all the economic and military good such an expanded program could bring with it.

Point out, for example, that revitalizing the aerospace industry would create millions of new jobs for skilled professionals.

Point out that the space shuttle, if it succeeds, could actually pay itself off and begin to make money for the government.

Point out that the Soviet Union has the capability of launching and manning a permanent orbital platform, with all of the military implications that go along with it.

Point out that pure research has produced such growth industries as aeronautics and computers, industries which employ millions and pump billions into the U.S. economy each year.

A few letters probably won't have much of an impact. But they might be read, and they might be thought of when decisions are being made.

Look at it this way. It's only 15 cents,and it could mean the future of the world.

Not a bad investment.

Maybe you've seen Mary Lynn Skirvin's beautiful rendition of the illuminated circuit diagram from A Canticle for Leibowitz. It has been on display at a few convention artshows. In the Walter Miller novel, several centuries have passed since World War III, and monks of the Order of Leibowitz are struggling to preserve the decaying remains of our civilization's technical knowledge, copying ancient manuscripts and blueprints even when they don't comprehend the documents. Someday, they hope, mankind may need this knowledge again.

"Transistorized Control for Unit Six-B" is an illuminated copy of a schematic found in St. Leibowitz's own toolbox. The title, labeling, and parts list for the circuit appear in elegant Gothic lettering. Wiring is black with transistors, diodes, and resistors picked out in gold. Vines twine around the diagram's straight lines. In grand medieval tradition, the figure is embellished with leaves,branches, resistors, meters, a cherub reading a blueprint, the Trinity, and St. Leibowitz raising a hand in blessing.

Prints of Mary Lynn's version are at last available. They are printed in four colors on parchment-like paper, 14 by 20 inches. She's asking $6.00-- a steal-- for each signed and numbered copy. She prefers to hand-deliver them at conventions, because she's reluctant to entrust them to the Postal Service and because suitable mailing tubes are hard to come by; however, she will mail them for an additional charge of $1.50.

Mary Lynn is the newest resident of the fabled House of Isher, the blaster factory in Kalamazoo. Contact her at 530 West Walnut, Kalamazoo, Michigan, 49007.

A huge current of techies (a scrounge of techies? a homebrew of techies? a stack?) converged on the Todd Johnson-Bill Higgins apartment in West Chicago after the Santa Fe Hamfest on Sunday, 10 August. Todd was able to meet the challenge by conjuring a vast pot of spaghetti.

Gretchen Van Dorn brought her Tinkertoy collection, which kept many of the seventeen fans present busy building Ferris wheels, Dean drives, and steerable radio telescopes. Mark Hyde scrounged an old blower and a suicide cord in order to drive a Tinkertoy windmill. Steve Kirk built a rubber-band-powered catapult, which started an armaments race.

Guy Wicker's birthday was celebrated with a cake decorated with green Cyalume lightsticks. Guy tried to blow them out by cooling them in a mixture of salt and ice water to dampen the chemical reaction; they did dim a little bit. Later the lightsticks were incorporated into the barrels of Tinkertoy rayguns.

The evening was enlivened by phone calls from George Ewing,Rolf Wilson, and Barry Gehm (who began his call with "This is Erasmus Darwin. What's all the noise?").

At Windycon lovely Janice Johnson of Ann Arbor told me of her engagement to Chip Morningstar. They will be married this winter. Congratulations, folks! Chip can always keep Janice warm by building bonfires out of all those old magtapes and printouts...

Two Amateur Press Associations have recently been propelled into life by GT members. Apa-Tech, founded by Renee Sieber last year, is now in its tenth or eleventh mailing, and thriving. It's intended for techies and their friends, but does not confine itself exclusively to techish discourse. Valli Hoski's Windyapa is newer but also lively. Its contributors are residents of Chicago, people who occasionally pass through Chicago, friends of friends of people who live in Chicago, et cetera.

If you don't know what an apa is, well, it's sort of a periodic group correspondence, or a bound collection of small fanzines. (If you don't know what a fanzine is, you'd better ask somebody in the GT Handbook. Of which more below.) The point is that you can participate in a delightful discourse with many friends and strangers; all that's demanded of you is that you write something-- a page or two-- every few months. Check it out.

Renee may be contacted at the House of Isher, above. Valli: 621 Hull Terrace, 1W, Evanston, Illinois 60202.

The long-awaited GT Information Handbook finally came out in October. Jamie Hanrahan labored hard over it, and it is a marvel to behold. If you didn't get your copy yet, let Jeff Duntemann know. Jamie and Jeff will continue to update the directory maybe once a year, so it's still important to send in your questionnaire if you haven't yet done so. (The Handbook also includes Dave Levine's 25-Pyro index and Jeff's updates on computer networking and do-it-yourself Pyros.)

Chip & Leah Bestler, Doug Price, Martha Soukup, Doug Rice, Marty Coady... What does this list bring to mind? Chicago fen? Old Windycons? Moebius Theatre? Techies? All will flavor Capricon One, the weekend of 20-22 February 1981. It's dedicated to the proposition that Chicago can easily support two conventions a year. Terry Carr and J.R. and Mary Jean Holmes will be guests of honor. Programming includes a trivia contest, lots of Japanese animation, new Moebius material, and $5 Sunday brunch. At the Evanston Holiday Inn; $7 until 1 January; write to Box 416, Zion, Illinois 60039. With such a lively and experienced crew, it ought to be plenty of fun. (Doug P. and Martha are also looking for volunteers for operations and artshow setup.) What else were you doing in February, anyway?

Computer crime offers many opportunities to the clever thief. I recently read of a computer programmer working for the federal government who set himself up as the Atlanta Highway Commission. Millions of dollars of highway funds were deposited into his account. He was only caught when the government noticed he was buying "Lear Jets, Rolls-Royces, and mansions" (yes, all plural).

Marcy Lyn and Barry Waitsman announce their wedding, at 12:45 p.m. Sunday, Feb. 8, at Temple Sholom, 3480 N. Lake Shore Dr., Chicago. The fannish reception will not be held until Capricon, Feb. 20-22, in Evanston. The time and day of the reception will be posted at the con.

YOU GENERALLY START WITH TRIBBLES

GRETCHEN VAN DORN

When the Sunday-night Supper Club sat down to consider what to put in Pyrotnuctipics, I figured my biggest contribution would be to wash the dishes. I was wrong. They wanted me to write something

What?" I asked.

"How about a piece on the construction of stuffed animals?" said Bill.

"Who would be interested in that?", I countered.

"I would!" said The Other Bill.

"Me too," said Doug, "and I'm the EDITOR."

Still unbelieving, I decided to appeal to a Higher authority, Rochester.

"Jeff, you don't think anyone would be interested in a Pyro piece on making stuffed animals, do you?"

"HOT CENSORED!!! Grot, That's a great idea."

So much for appealing to the higher authority.

So, what can you say about fannish stuffed creatures? Assuming of course that you know the rudiments of sewing, you generally start with Tribbles. (An oblong of fake fur, folded over stitched, and stuffed.) They're obvious, and they're easy

You want to get more expressive than that? Add things. Add arms and legs. Add a big toothy grin. Add a purple plaid kilt. (Ask Jeff about that one, I'm not going to explain.)

If you feel you're beyond the furry lump stage and want to try something more complex, look in the back of a pattern catalog. The major pattern companies all carry stuffed animal patterns in their Craft sections. They will be mundane animals, of course, but they are a start. If nothing else, they'll give you an idea of what pattern pieces look like, how to shape legs so that they point down and not out, how to make a nose stick out from a face, etc.

Even a mundane creature can be made fantastic by the addition of something not found on the real item. (A pair of butterfly wings on a cat, a space helmet on a kangaroo, that sort of thing.)

The next step towards fannish creatures lies in changing a commercial pattern to suit your special needs. My basic dragon pattern started out as Butteric's Tyrannosaurus Rex (alas, long discontinued). The basic structure remained the same, but changing the details made all the difference. (I lengthened the neck and tail, made the back legs more slender, the front legs thicker, made the head serpentine, and added wings. Voila! - a dragon.)

Ultimately you want to be able to draft your own pattern from nothing more than an idea. The jump from commercial pattern to none at all can be bridged by making a pattern from measurements taken from a model, (an existing stuffed animal or a sleeping cat, for instance.) Drawing the model from these measurements teaches you how to go from round to flat and back again.

No matter what the source, it's a good idea to try a new pattern out on something cheap and easy before you cut into your $13.50/yard fake fur. Muslin and broad cloth will both do nicely, but anything cheap is worth a try.

On the subject of $13.50/yard fake fur, I have found that the materials that you choose are the most important factor in the appeal of stuffed creatures. The fabric will suggest the creature as often as the creature suggests the fabric.

Take a wander through a fabric store. (I can suggest several good ones in the Chicago area.) Keep your eyes open and your fingers out (touch is just as important as looks) and something will jump out at you and yell "Buy me."

Velvet and fur (fake or real) please the hand as well as the eye, and pile covers a multitude of sins. Velour feels as good as velvet but has more give. (Velour Fandom Lives!) Vinyls and suedecloth simulate leather and are a lot cheaper and easier to work with. The disco craze has brought a lot of spectacular fabrics onto the market: satins, lames, mylar knits, and lycra iridescents, for example.

And don't confine yourself to fabrics. Look carefully through the trims, fringes, buttons, buckles, and notions. Open up your imagination and let things suggest themselves. I once designed a velvet flying horse around a pair of buttons that took my fancy.

I suppose at this point I should say a few words on construction techniques. Your average stuffed creature is a fabric shell filled with a stuffing of some sort. Certain areas may well need to be accented or reinforced so that they are smooth and not puffy. Cardboard, interfacing, or shapes cut from plastic will all serve depending on the amount of stiffening needed.

Some designs will call for a skeleton of some sort. Dowels and wire can form very efficient skeletons. Springs and hinges add flexibility. You can even raid your Erector set. Remember however, the above are not cuddly.

For those of us who can't sing and don't draw, it's a marvelous outlet for creative urges and a legitimate art form. So go ahead and try a tribble. It just may get you hooked.

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BILL HIGGINS

THE BOXER REBELLION

CHUCK OTT

Part One
In Which I Explain My Dilemma

Having recently sold my car, I have been forcibly re-introduced to the Crazy Box People. In crowded subways, I find that on the average I am immediately surrounded by four people, of whom one will be carrying an enormous black, blaring radio/cassette player/sousaphone emulator. From this I conclude that one-fourth of the subway-riding population of Chicago is addicted to distorted music.

Many articles of profound significance suggest themselves to me, as I consider this phenomenon. Why, I ask myself, do so many people feel the need to aggressively expand their personal spaces in this way? Why, although high-fidelity has heretofore been the mark of snobbery in sound reproduction, is it now a status symbol to produce wretchedly distorted music instead? What did the young man mean, when he was interviewed for the newspaper, when he said that he wanted other people to "participate" in his music?

But on second thought, I really don't give a damn about any of that. I just want it to stop.

Part Two
In Which I Explore
Some Possible Solutions

I have considered carrying a large steel pipe under the coat of my business suit, and using it to whop Crazy Box People on the head. This approach, while having the virtues of simplicity and directness, leaves me open to retaliatory violence, and is in any case inconvenient.

I could buy another car, but that's expensive.

Lately I have been thinking longingly about the "Fenton Silencer", which was described in Arthur Clarke's story "Silence Please", which is in his collection Tales From the White Hart.

The Fenton Silencer, if you recall, was an electronic device which worked on the principle of interference. Sound is composed of waves in air: if a counter-sound could be produced so that it would always be exactly out of phase with the noise around us, the two wave-forms would cancel out and leave only blessed silence behind. This was the principle of the Fenton Silencer.

Quoting from Mr. Clarke's story:

> "Of course," [said Harry Purvis], "there was rather more to it than that. There had to be an arrangement to make sure that the canceling wave was just the right intensity -- otherwise you might be worse off than when you started. But these are technical details that I won't bore you with. As many of you will recognise, it's a simple application of negative feedback."
>
> "Just a moment!" interrupted Eric Maine. ..."There's something wrong here. You couldn't get silence that way. It would be impossible to arrange the phase ..."
>
> Purvis jammed the pipe back in his mouth. For a moment there was an ominous bubbling and I thought of the first act of "Macbeth". Then he fixed Eric with a glare.
>
> "Are you suggesting," he said frigidly, "that this story is untrue?"

Well, the story was just fiction, more's the pity. The problem with the Fenton Silencer is that (as I understand it) even electronic devices need some time to operate. By the time the Fenton Silencer had analyzed the incoming noise, reversed it and produced its own counter-noise, the original noise would be long gone. The Fenton Silencer could never catch up with the noise it was supposed to combat.

However, ...

This is 1980, and we have lots of swell gadgets that Arthur Clarke may have dreamed of, but did not possess, when he wrote that story in 1954. Under the maternal prodding of Mom Necessity, let's see what we can come up with.

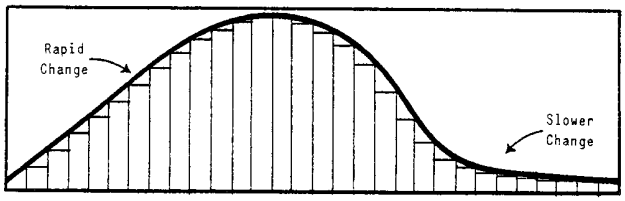


Figure 1: Chopping up a curve into rectangles. The width of each rectangle represents the time between samples, and the height is the value of the curve at that point.

Part Three
In Which I Describe My Invention

Please refer to Figure 1, which clearly shows some curved lines, some straight lines and some other stuff.

Actually, Figure 1 shows how a curve such as a sound wave can be represented by a series of rectangles. The more rectangles you use, the closer the resulting stair-pattern will resemble the original waveform.

Moreover, the rectangle can be described with a series of binary numbers, while the original waveform can only be described with calculus and not always then.

This system of describing a curve as a series of numbers is already used for sound recording. They're called digital recordings, and you can pick them out in the record store because they cost a bushel and a peck more than ordinary records. The advantage of digital recording is that you can clean all of the noise out of the recording, and still preserve superb quality in the music. You do this with a computer.

The device that breaks up a waveform into numbers is called an "Analog-to-Digital Converter", or ADC. Another device performs the opposite function of converting a binary signal back to a smooth wave: this is a Digital-to-Analog Converter (DAC).

Do you see what's coming here? We can make a Fenton Silencer by tying a little computer between an ADC and DAC. The ADC listens to the noise of the Crazy Box People and describes it as a series of numbers. The computer reads the numbers and makes an educated guess as to which number will be next. It sends that number to the DAC inverted, and the DAC makes a counter-noise which should neutralize the waveform that the Crazy Box is about to produce.

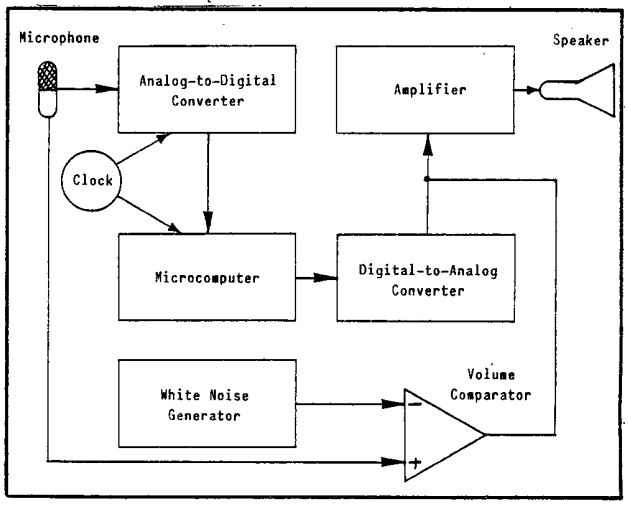


Figure 2: Block Diagram for a Fenton Silencer

Part Four
In Which I Get Down
To The Nitty-Gritty

Figure 2 is a block diagram of my idea for a Fenton Silencer. As with everything else in this world, it gets more complicated when you think about it a little.

Nevertheless, there's still not much to it. Sound enters a microphone at the left and is passed to the ADC. The ADC is "triggered" by pulses from the system clock. Every so often (technically, once per millimoment or about 0.75

shakes of a lamb's tail) the clock gooses the ADC and causes it to look at the incoming waves. On the next clock pulse, the ADC delivers a number to the one-chip microcomputer shown in the middle.

Look back to Figure 1 for a moment. The micro looks at each number and compares it to the numbers that have gone before. If the numbers are increasing rapidly, it means that the ADC is measuring the rising slope of a curve. The micro adds to the input number and sends out a larger number.

If the number received from the ADC is only a little higher than the number before, it means we're looking at the top of a curve, and the micro will produce a number only a little higher or lower.

On the downslope of a curve, the micro predicts the next value the same way. The number that the micro actually sends out will be the negative value of the next predicted reading, because we want to neutralize the noise. When a positive curve and an equal negative curve add, they sum to zero -- blessed silence.

On the other side of the micro, a DAC converts the numbers back to sound. The amplifier sends this noise out through the speaker.

Two other components complete the system. The first is a fudge-factor. The "white noise generator" is intended to smooth over the inevitable mismatches between the incoming noise and the outgoing counter-noise. "White noise" is sound of all frequencies, rather like the noise of falling water or the sound you hear when you put a sea-shell to your ear. It has the effect of masking other noises, and in fact white-noise boxes are available already to neutralize annoying ambient noise. The problem is that you're not really removing the noise, just covering it up.

A small white-noise generator, however, will be just the ticket for patching up any irregularities in our Fenton Silencer.

The other widget in the diagram is a volume comparator. As Clarke pointed out, it won't do to have the Silencer be louder than the original noise. The volume comparator looks at the signal from the microphone, subracts the noise from the white-noise generator and adjusts the amplifier to make the final result zero.

Part Five
In Which I Wrap This Up

Physically, we could package the Fenton Silencer in a case much too large for it: a case, in fact, about two feet by a foot by six inches of snappy black plastic festooned with blinkie lights and speaker grilles. You'd carry it on your shoulder so that other people could "participate" in your silence.

But would it work? I confess that I'm not enough of a tech to go any farther than this. Someone is bound to object that natural noise does not come in nice sine-wave curves, the way I drew Figure 1. This is true, but if the intervals between samples are short enough (that is, if the system clock is fast enough) then the difference between the actual signal and a sine wave becomes insignificant.

Would it be too expensive? Maybe: ADC's and DAC's are not all that cheap right now. The other components don't amount to much: the micro should run perfectly well with no support chips at all. Something like an Intel 8048, for example, should have capacity to spare.

Would using it expose you to physical criticism? Possibly. However, if this thing could be made to work, you might not need to carry it yourself. The Chicago Transit Authority might be persuaded to mount one in each car. A heavy-duty model might even reduce the god-awful screeching the car itself makes.

So there you have it. Can anyone give me an opinion better than my own as to whether this is feasible? Can we build one? Can we freak out a convention with one?

What's that you say? I can't hear you? Did someone answer my questions? Hah?

(Jerry Corrigan here, Chuck. Unfortunately, sound doesn't work that way. Two waves from separate sources cannot cancel everywhere. If they cancel at one point, they will reinforce at some point the same distance from one source and one-half wavelength closer to the other. (Actually, the situation is more complicated than that, as wavelength depends on frequency and sound is not a purely sinusoidal wave.) It is possible to create local areas of cancellation, but the sound from the two sources would have to be travelling in the same direction, so that the two sources would lie on a line with the area of cancellation, or else the two sources would be far enough away that they are effectively in the same direction as measured from that area. It would be possible to produce a reasonably good area of cancellation if all the sources being cancelled were on one side of a surface and speakers were distributed over the surface. Such a device would be prohibitively expensive, however.

(If you were to build the box you describe, and adjusted it to cancel some sound on the far side of it, you might be able to eliminate the sound from one box, but if you succeeded, you would be doubling the noise for some other poor soul on the bus. A better solution would be to jam the box; but to jam all kinds of boxes, it would be necessary to jam the audio circuits, which would require too much power. The best solution I could come up with is to put the offender and his box into a vacuum.)

Chuck Ott

Fill 'er up with
SLUDGE?
Not yet
...but soon!
Within a year, the Energy Systems Division of TickTockTech will announce a revolutionary solution to the gasoline crisis: the X-S automobile engine.
It will run directly on the Athabasca Tar Sands, largest petroleum reserve in the Western World.
One-thirty-second the energy of refined gasoline at one-sixty-fourth the cost. Up to three miles per shovelfull.
Watch for more details from America's technological leader:
TickTockTech
Up-to-the-Minute Technology!

TEN-CODES TO THE STARS

BARRY GEHM

The idea for this collection is several years old. I believe it started out at the MSU SF Society, back when a number of techies were members. Whose idea it originally was is lost in the fumbled footnotes of history: probably either myself, Bill Higgins, or phantom techie Mike Brandl.

Some of the codes listed below are real, courtesy of the Radio Shack CB ten-codes quide; the others were made up by myself, members of MSUSFS, and the Edge-of-the-Pool Gang at Confusion 6 and/or 7. Don't treat this list as definitive-- make up your own. Send them to Pyro (Jeff will kill me for this). The submitter of the best entry will receive a free autograph in his copy of The Endless Frontier. Two, if I can twist Bill's arm. [10-399 (= Ouch).--BH]

10-14 My hovercraft is full of eels.

10-54 Supernova in progress.

10-32 I will give you a radio check.

10-32.5 The check is in the mail.

10-48 Truck stop out of Spam.

10-66 Norman invaders proceeding north on Route 4.

10-200 Police wanted at...

10-201 Police NOT wanted at...

10-95 Transmit dead carrier for 5 seconds.

10-951 Carry dead transmitter for 5 seconds. (Scrounge drill)

10-952 Transmit aircraft carrier for 5 seconds. (Transporter drill)

10-94 Give me a long count.

10-941 Give me a long count off a short pier.

10-1812 Dah-dah-dada-dada-BOOM-dah-dah [Alternate meaning: I can't hear you, I've got a noisy muffler.]

10-555 Square-wave transmitter on channel 15.

10-92 Your transmitter is out of adjustment.

10-921 Your receiver is out of adjustment.

10-922 Your nose is out of joint.

10-91 Talk closer to mike.

10-911 Talk closer to Bill.

10-90 I have TVI.

10-901 I have VD.

10-100 I have 2P. (Time out to go to bathroom)

10-1864 Martians burning Atlanta.

10-1938 Martians burning Orson Welles.

10-5,271,009 Two comes before three, not after!

10-407 Why is that Volkswagen towing a tank of cleaning fluid?

408 That's not a tank of cleaning fluid, that's a pulsed-neutrino communications antenna!

10-42 Traffic accident at...

10-70 Fire at...

10-701 Fire at will.

10-37 Wrecker needed at...

10-375 Editor needed at...

10-1984 Big Brother is listening.

10-8080 This automobile under computer control.

10-0808 This computer under automobile control.

10-36 Correct time is...

10-361 Incorrect time is...

10-30 Does not conform to FCC rules.

10-301 Does not conform to Maxwell's equations.

10-2-4 Get me a Dr. Pepper.

10-26 Disregard previous transmission.

10-261 Disregard next transmission.

10-262 Disregard this transmission.

10-567 What's that Touch-Tone interference?

10-163 Dead animal in road.

10-164 Dead bandersnatch in road.

10-600 Light Brigade charging half a league onward.

10-73 Speed trap ahead.

10-40A Tax trap ahead.

10-4[illegible]r Am driving in circles.

10-N_0 Very long trip planned.

10-$\sqrt{-1}$ Can't imagine where I am.

10-601 Something is eating my oxygen mask.

10-186,000 Speed limit being enforced.

10-300,000 Think metric.

10-2001 Remember the Fourth Law of Robotics!*

10-1973 Which way to Minneapolis?

10-999 Aw, c'mon, guys, just one more chorus of "Benson,Arizona..."

10-*@#%! Blow it out your impulse drive!

10-0.01 My dog wasn't THAT shaggy.

* Krabacher's Fourth Law of Robotics: Never turn your back on a robot.

From Charles Galway: [Intervention Beta] went very well, except for the inoperative condition of my remotely piloted box (Tycho), after desperately trying to rebuild it the evening before the con. A few nights more like it, and it should be working. I'm installing my SYM-1 computer on it. Jumping out of the con into school on Monday has kept me busy. School has been mediocre, and needs to improve.

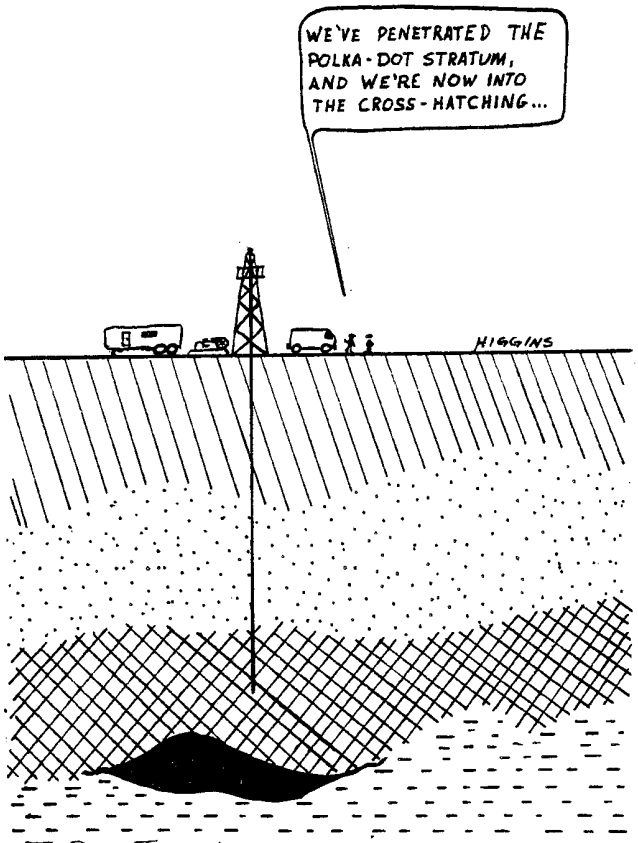
From Barry Gehm: About Conclave-- It was pretty small-- less than 300 people-- and real relaxicon. Not even a film program.

...Dave Levine had a nifty new laser pistol. (Neat sound effect idea. The laser doesn't make any noise, but the HV supply puts out lots of RF. So he carries an untuned AM radio in his back pocket and it makes very effective noises.)...

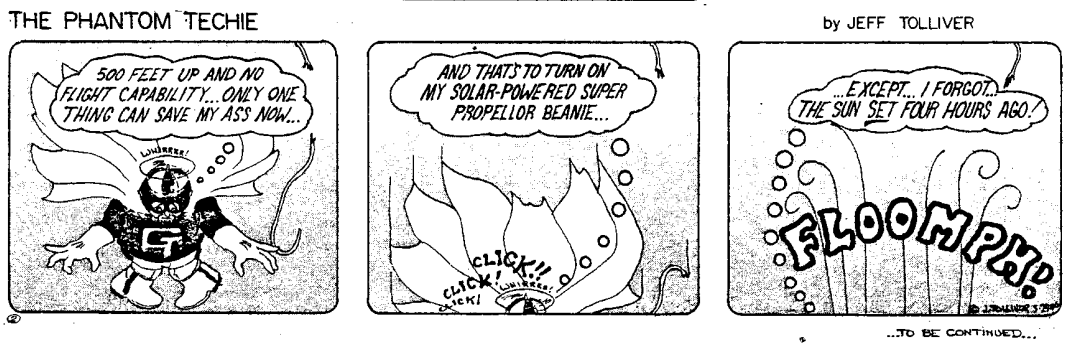
The (Bill and) Barry Show: [See, folks, Conclave put us on the program again, but I couldn't attend because Neutrino started up that weekend. --BH] Well, there was a certain quantity of egoboo to be had there. My name was even among those read on the list of Notables-in-attendance at the opening ceremonies (I was desperate for entertainment).

I did the "show" solo. Told a few stories, wailed a few songs, related the Bill&Barry secret origins story, talked about L-5 a little, etc. The attendance was slim. About three GTers, one stranger, and one guy I knew from Nikki [Ballard]'s Clarion. At least I had them laughing. We're going to have to be a bigger draw if we want to be invited back though.

I think we should try for a guest spot on "The Muppet Show...."



THE PHANTOM TECHIE / AN INTRODUCTION TO NELSTON: CHAPTER ONE.
BEING A REAL LIFE SUPER HERO ISN'T EASY. THE HOURS ARE LONG, THE PAYS LOUSY...
TOP THAT OFF WITH EVERY PUNK IN TOWN GUNNING FOR YOU! SHEET COULD BE WORSE?
BY TOLLIVER
SNAP!
I JUST HAD TO OPEN MY BIG SUPER MOUTH!
SIGH!


THE PHANTOM TECHIE
by JEFF TOLLIVER
500 FEET UP AND NO FLIGHT CAPABILITY... ONLY ONE THING CAN SAVE MY ASS NOW...
AND THAT'S TO TURN ON MY SOLAR-POWERED SUPER PROPELLOR BEANIE...
CLICK!!
...EXCEPT... I FORGOT... THE SUN SET FOUR HOURS AGO!
FLOOMPH!
...TO BE CONTINUED...

GERALD CORRIGAN

Sunday, July 6, 1980, 10:03 P.M.: My telephone rings. Answering it, I hear Doug Van Dorn's voice.

"Hi, Jerry!"

"Uh, Hello..."

"We're going to put biodata in the Chicago Pyro."

"But, Doug..."

"It doesn't matter that you didn't write anything. You're still a part of the group putting it together."

Gretchen's voice comes in from the background. "He's the cook!"

"That's right, you're the cook."

"Okay, Doug, I'll try to get something written."

"We need it by Wednesday."

Right, Doug.

I guess I might as well begin at the beginning and head for the present. I was born on November 5, 1956 at St. Mary's Hospital in Streator, Illinois. Shortly thereafter, I was taken to the farmhouse where I was to reside for the next seventeen years or so. Growing up with only my brothers and sisters around made me somewhat capable of entertaining myself. I became very fond of reading. Among my fellow students at St. Anthony Grade School, this marked me as "weird", thus providing me with a practical education in mob psychology. My book addiction led more or less naturally into science fiction addiction. By the time I was in sixth grade, science fiction and fantasy made up at least half of my reading material. I also started reading some books on electronics (such as I could understand at the time) and decided to study electrical engineering.

Other than the above mentioned facts, nothing much unusual marked my life until I returned to the University of Illinois from my first co-op session. I met a large person who went by the name of Rolf Wilson. He suggested I might enjoy a meeting of a campus group calling itself the JARGONISTS. This group later formed itself into ChUSFA, and the rest may someday be considered history.

Finishing up this sketchy story of my life I should explain that "He's the cook" bit. The only problem is that I don't understand it myself. Doug and Gretchen have hosted the Sunday night supper club more often than I have.

BILL LEININGER

Let's see... Biodata.

Oh, yes. Now I remember. I was born on November 23, 1958 (a little bit before my time, but I've tried to control my impatience since), in a hospital in Chicago, Illinois. Shortly thereafter I was moved to Mt. Prospect, a small suburb northwest of the above municipality, where I proceeded to spend the next twenty years, with time off for good behavior. I then moved with my family about two miles due north to where I now reside. Don't ask me why we bothered.

I have always been interested in the sciences and spaceflight (One of my earliest uses of the local children's library was to check out all the books on magnetism and gravity I could find, in an attempt to invent anti-gravity. Surely no one else had read all those books...), so I guess it was more or less natural that I should start reading science fiction. I started with the Danny Dunn series and the Tom Swift Jr.'s, and then proceeded to voraciously devour the rest of the children's stripping it bare of anything resembling science fiction. I didn't start in on the harder stuff bottled up in the Adult section until 1968, when I (as so many others) saw the movie 2001, and went in search of the book to find out what the lights were all about.

When I reached high school, I found a computer terminal waiting. It was attached to a relatively dumb Hewlett Packard timesharing system that only had BASIC, but it served to keep me occupied for the next four years, when I moved on to bigger and better things. Bigger and better things was PLATO, the educational computer system at the University of Illinios.

It was also Fandom. I found fandom one afternoon on PLATO, where I came across a reference to the Champaign-Urbana Science Fiction Association (ChUSFA). I traveled to their library, and there met a group that now comprises about one-third of my friends. This was just before Windycon IV. I got dragged to that convention, where I inadvertantly followed Mike Bentley into a GT business meeting, where I dimly met most of the rest of my current friends.

Whether or not this is for the better I still don't know. Shortly thereafter, I had to withdraw from the U of I for academic reasons. I returned too soon, got bounced, and now reside with my parents, trying to work my way back into school through the local junior college. (Incidently, if you read the note on the back of Pyro #23 about something growing in my throat, don't worry. It was at about this time that something called a dermoid cyst (don't ask me, I just catch 'em...) which they tell me had been peacefully co-existing with me for 20 years, decided that this jaw wasn't big enough for the two of us, and swelled. It has since been surgically removed, and is totally healed.)

So, here I am. While waiting for the school year to start, I am working for the National Association of Independant Insurers doing computer science's version of drudge work, and go for long bike rides to watch the cornfields of my youth turn to mini-industrial parks around me.

My ambitions are someday to learn to punch my way out of a circuit diagram, play the guitar (after messing up on the piano and trombone, what could be more natural?), become a published SF writer (I've already got my first rejection slip...), and, like most people I know, to Space. (I said Space, Not BE spaced....HELP! No, not the airlock, anything but that WWWHHHHHOO-OOOOOOSSSSSHHHHH.....)

MARY LYNN SKIRVIN

I started out as a child on June 14th, 1956, in Bloomington, Indiana. For the most part, I was grossly mundane until I reached junior high school, so I'll skip forward a bit. At age 6, I moved to Indianapolis with my family so that my father could get a better job. Childhood was dull until I discovered Star Trek in 1966. Being a loner-type, this 10 year-old found that science fiction was just the ticket out of my tedious existance. I applied myself vigorously to any sf novels I could get my hands on and by the time I reached High School, I had nothing but science courses on my schedule. During my junior year, I met Mark Sharpe who pried me out of my hermit's shell and introduced me to the world of science fiction fandom, a phenomenon that I found almost unbelievable. But I adapted eagerly.

It wasn't long before I was persuaded to go to an sf convention. Now mind you, I'd been to many Star Trek conventions of the 5 to 15 thousand in attendance range. But there is a difference between sf fandom and that of Star Trek. For my first convention of the sf kind, Chambanacon 7 of 1977 was somewhat of a disappointment. I didn't know ANYONE. And I was virtually abandoned by the people who coaxed me to come. However, while I was mourning the loss of a weekend, I met David Levine, with whom I fell in love almost immediately.

Time passed, and my home situation in Indiana eventually became intolerable, so I moved to Milwaukee for lack of any other favorable alternative. Close proximity destroyed my relationship with David, so I pulled an opposite and gafiated INTO fandom. I went to conventions with a will to make friends and meet people and hopefully, forget my loss.

It wasn't until I visited Phil Foglio's house, that GT swept over me. I met Bill Higgins and Todd Johnson who promptly invited me to come to their berserker in August of last year. I knew that I did not have any extensive qualities that would qualify me as a true techie, but I was interested, and I was willing to learn especially if someone was patient enough to sit down and explain things so that I could understand. Having a basically poor family is not very conducive to getting an advanced education, but I was intensely curious and spent many long hours on the phone with Todd who endeavored to explain basic electronic principles to me. Before long, I was able to assemble my own blinkies and annoyatrons, and even formulate ideas for new ones. Unfortunately, this is about as techie as I'll ever get, but at least I have a running idea of what I'm doing as well as enough knowledge too almost understand what is being

discussed when techies get together. But, if there is a need for a competent artist, I willingly volunteer my services in lieu of circuits and mathematical numbers.

Eventually, I'd like to take some advanced classes in animation, and perhaps commercial art.

I'd like to develop my art on my own,though; the pay's better.

DOUG VAN DORN

It was a dark and stormy night...(What? Someone's used that already? Darn. Well, let's see.....)

It all started at a 5,000 watt radio station in Fresno, Calif....(THAT one TOO?! DRAT! Oh, well...) Since all the good openings have been taken, I'll just say that I am Doug Van Dorn, editor of PyroTnuctipnics and general man-about-Chicago.

I came into this world on October 17, 1955 (No, I don't know what time it was--I wasn't paying much attention to the clock), the last of two and a half children. (When I was told I had a half brother, I wondered whether he was split from crown to crotch or just sort of ended somewhere around the waist...)

And I was going to be Suzanne Van Dorn. (Sorry about that, folks.) When it turned out that Suzanne would be, well, an awkward name for me, the folks dropped back on their contingency name--Brian.

They had been hoping so much for a Suzanne, though, that they didn't have a middle name to go with Brian. My Dad liked Douglas (This was 1955, remember), but my Mom thought Douglas Brian sounded better than Brian Douglas. So, here I am.

Though only one of my one and a half brothers lived with me, this was not necessarily a blessing. My older brother was a pain in the neck and went through school making enemies of the teahing staff. So much for being a target--when the teachers are against you, too, you don't stand a very good chance.

I must admit, though, that I was probably as much a cause of my targethood in school as any other reason. You see, I read. And I got good grades. (Maybe it's just that us intelligent people threaten all those salt-of-the-earth morons out there. Anyway...)

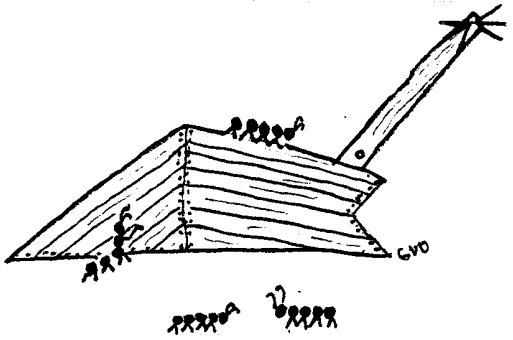
As I grew, my first and most everlasting fascinations was with the American space program. I lived, ate and slept space. In fact, in 1966, when Gemini 8 managed the first manned space docking, I played Paul Revere on my bike, screaming to the neighborhood of this historical achievement. (See what I mean about being responsible for my own targethood?)

I soon found that science fiction could give me that space-shot feeling in between NASA's scheduled events. And, rather naturally, I went for the "high tech" authors like Asimov, Clarke and, later, Niven.

I got through college pretending to be an actor for two years and practicing my writing skills for another three. This led me into a short career as a newspaper reporter, one I found I detested with a vengeance. So now I am a computer operator for NCR. You figure it out.

When I met Gretchen at college, and thereby discovered fandom and GT, this was a natural course for me to follow, too (despite jokes about marrying into the organizaton).

Well, as they say, Fandom has been good to me. Hopefully, I'm starting to return the favor.



"Yes, I know it's a sellout, but it's the only way we'll ever make it back into this silly publication."

GRETCHEN HARRIET PHYLLIS DUNTEMANN VAN DORN

Gretchen is for an alpine novel that my mother read a long time ago. (If I had had a sister, she would have been named Liesl.)

Harriet is for my grandfather, who died two months before I was born.

Phyllis is for my mother's eldest sister, whom I supposedly resemble a great deal.

Duntemann is twofold; for my father, and for the original "dark man", whoever he was, who started me won-dering about my Origins.

Van Dorn is for Doug, because he wanted it that way, and because I'm proud to wear it. (And it's easier to spell--Ed.)

Born: 10/22/56 (I feel too old already).

My mother says I started talking at eleven months and haven't stopped since. This is an exaggeration. I spent at least 18 years playing audience for my illustrious older brother. (I know more Jeff Duntemann stories than anyone else in the world.)

In school, I did not experience the phenomenon of being class target to any great extent. I guess I avoided this by developing protective coloration. I didn't threaten my classmates, so they felt comfortable in leaving me alone. I was rotten in spelling (And still are--Ed.) and gym, passable in math and english and excelled only in the sciences, natural and social. Also, I think that my classmates were a little scared of me. I knew more words than anyone else in the class and would amuse myself by reading the dictionary.

I also read other things. Just about anything I could get my eyes on. History and science fiction, mostly. Cornelius Ryan and Robert Heinlein. Andre Norton. In my early years, Ruthven Todd. (Who's he??) In high school, H.P. Lovecraft. Ever try explaining him to a nun?

In junior year of high school (Resurrection Academy for Girls), I decided that there was no future in teaching natural science and history on the junior high level. I spent 4 and a half years pursuing a bachelors in meteorology. I work in a fabric store. Oh, well.

In college I did at least two things right. I discovered fandom and met Doug Van Dorn. We got married. All of us. He, I and fandom. At least, it seems that way some times. (But the bed gets soooo crowded -- Ed)

As a child, it worried me that I had no apparent talents. I couldn't sing, draw, play an instrument or anything like that. I was a late bloomer. In college I discovered that I could sew. It's not one of your standard talents, but it's fun and offers me a creative outlet.

A birthday near Halloween led me to a thing for costumes. Fandom offered me another outlet for this. Luckily, Doug shares my interest.

Here I am, approaching the end of the page, so I'd best sum up. I am not into computers. The only electrical circuitry I've ever done was the doll house I wired in high school physics class.

I can fix a vacuum cleaner and have jury-rigged a number of things on my lemon-yellow sewing machine.

With the proper inputs I'm a fair-decent weather forecaster. I make a great audience and love to learn.

VALLI HOSKI

Born in the delightfully sultry summer of August,1953, my family bestowed several loves upon me, which were to instill a predilection and affection in me for several very fannish behaviors. A love of reading began when my parents read to me every night. Apparently, I was able to recognize stories which were repeated and complained loudly, demanding new stories. Hm, indications even then that I was to be bored with traditional literature! For my first five years, I had long hair, very long hair, which was an asset when trying to convince me to go to sleep. Scratching my back or brushing my hair was enough to lull me asleep, and so my affection for backrubs began at a very tender age.

Learning to read was one of the definite delights of my life. I still vividly remember the thrill of bringing home my first reader, and actually being able to read on my very own, as my father sat and read the evening newspaper.

Grade school passed with time. I remember my mother insisting one day that I was going to have to stop reading an entire book a day-- but rather a chapter a day-- until my room was cleaned or the dishes done. I seemed to have some social problems as well, not being included in the In group but not being included in the real Brainy group either. Seems to be common with a lot of SF fen, this feeling of exclusion.

The first SF that I remember discovering was the SF subsection in the juvenile section of my local public library. The Mushroom Planet books were a very early experience of mine, and I still enjoy rereading the adventures of the lovely pastel-green-skinned folks.

Back to adolescence, which did not prove to be as agonizing as it has for some others. It wasn't all that bad, after all, considering I was the result of 12 years of Catholic education.

On to the wonders of college, and all I wanted from life was to be a librarian, and be surrounded by all those delightful books all day long! Guess what, guys? I was at Michigan State, too! After being back at home and Wayne State University for a while, I returned to MSU for my senior year taking a side trip to England first in the spring of 1975. Missed going to the first Seacon that year, by only sooo much, and set back my introduction to fandom by about three years. Managed to gain a working knowledge of some audiovisual equipment and photography during my senior year. Also used computers for the first real time (no pun intended--BH), and they actually did what I needed them to do! Amazing! Until this time, I had ignored science and math with the elitist attitude of a humanities undergrad.

Graduate school at Purdue University in the somewhat elusive field of educational/audiovisual technology developed a dichotomous love in me. I suddenly discovered twin talents of mine which had heretofore gone undiscovered: computers and audiovisual technology.

I began my post-master's work at Indiana U. in both fields, and gained a third talent while there-- fandom. Walking into the IU SF Club meeting on a Tuesday night (Tuesdays indeed, the rest were always on Thursdays!) I made a good friend. Suffice to say, Windycon V was my first con. My fanac was minimal until I moved to Chicago in June, 1979. Then fandom became an integral part of life. I was going through a painful withdrawal from PLATO when a GT member provided me with much-needed computer talk, and Dick Smith. Bill Higgins's August berserker was the first exposure I had to GT as a whole. Somehow I was there, in the middle of it all.

Here I am now, back on PLATO, in GT with a smattering of knowledge of photography, audiovisual toys, computers, and education, and do you know any more than when you started? Again the right people at the right time---

ZAPGUNS 'N LASERS 'N ROBOTS 'N STUFF

JOHN HALL

Several issues ago, Jeff mentioned that zapguns should look like zapguns and not like instruments of destruction. I had some doubts about this at the time. After all, we're simulating the small arms from some reality or another. I can't quite imagine Johnny Rico (or Cletus Grahame or John Christian Falkenberg) turning out for battle with a weapon of polished aluminum, diffraction grating, and acrylic, all covered with flashing LEDs. The engineering that goes into things like weapons is functional, not decorative. Placement of the various stocks, grips, and handles is to allow maximum speed and accuracy of fire. Materials and finishes are designed for durability. The Colt forty-five automatic pistol (a.k.a. "pocket cannon") wa adopted by the U.S. Army in 1911. Still use today, it has been shown to operate reliably afte being drowned in salt water and buried in sand That's practical engineering, my friend. Somethin that happened this spring changed my mind. Jef may have the right idea after all. Read this an decide for yourself. In File 770 21, Alexi Gilliland reported the following incident tha happened at Disclave earlier this year:

"Saturday evening the SWAT squad walked in As the official closest to hand, I got to talk wit them. The sequence of events appeared to be this An emergency vehicle, in passing, noted some peopl entering the Hospitality House (the Disclave hotel with automatic weapons, and reported it. It wa fairly dark, and we had a lot of people goin around in costume, including some with plasti weapons of various sorts, so this i understandable. Two team members walked into th lobby with shotguns, and by the time I reached th van, the SWAT team appeared to have figured ou that there were a lot of people in costume. On thing that the team captain told me was a littl upsetting: as the SWAT van pulled up, light blinking, no siren, one of the costumed figure (this is evening, remember) pointed a (seeming weapon at them. 'I was about one second fro letting him have it,' said the team captain. "

Something to think about, huh?

'n Robots

Moving right along to a lighter subject, al GT robots are fake robots. Any device that cannc operate without a guiding human hand on a radio (o worse, umbilical) control box is not a true robot It is only a simulated robot. Even artificia intelligence is better than no intelligence at all

(Uh-oh, Cosmo just rolled in with a bucket of ta and a sack of feathers.)

I'm no machine shop wizard, I admit. I hav great admiration for anyone who can turn ol trashcans or sonar consoles into remotel controlled pseudo-automata. But that's all the are. The are more closely related to Maelzel' chess player than to Mars Rover.

When I was eight years old (and that was long time ago, indeed) I had a toy called a "Brain Bug." About the size of half a canteloupe, it ha two tiny electric motors that propelled it aroun the floor. Whenever one or both of its long curve wire "feelers" touched an obstacle, the appropriat drive motor would reverse, causing the bug t swerve and (usually) avoid a collision.

I haven't seen any of the GT robot crew tha wasn't a completely open-loop mechanism. Hol Norbert Wiener (take off your hat, John.--BH) feedback is the heart and soul of cybernetics Basic sensors to keep the poor robot from bashin into walls, potted palms, and cuspidors might be good place to start. How about floor leve sensing? It just might keep your little 50 kg robot from running down a flight of stairs (or ove a security guard's toe).

Radio-controlled and pre-programmed toys ar no longer exotic. Anyone who passed near a to shop last Christmas can tell you that. Are yo going to let a Big-Trac steal your thunder?

(A nice challenge, John. The robot builder among us have indeed discussed these points fo years. Seems that building a reliable senso system is harder than it sounds, though. Feelers sonar, and infrared beacons have all been attemped Still, I believe both Steve Johnson and Jef Duntemann are at work on more advanced, smarte 'droids. I don't know at present where Galway Tolliver, Snoblen, and Proni stand.--RH)

'n Stuff

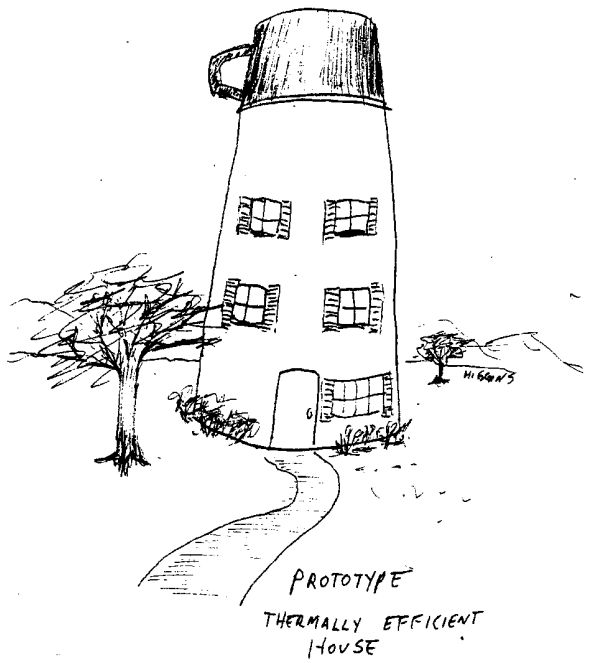
On the subject of radio-controlled toys, Meq is rumored to be preparing a toy called "The Blimp for the Christmas season. It is to be a aluminized mylar helium-filled flying toy. It i radio-controlled with four motorized props allowin it to lift,descend, hover, turn, or move froward Minneapolis in '73!

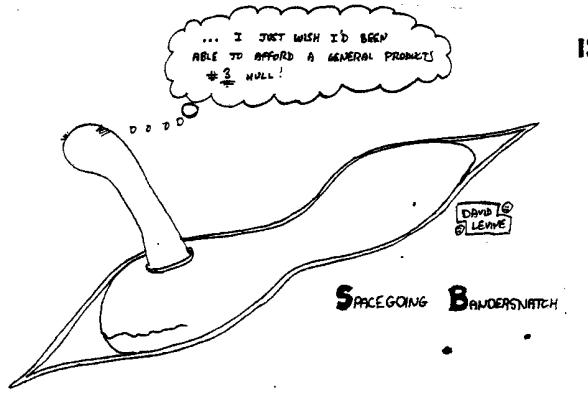
ZAPS FROM THE BACKWOODS

GEORGE EWING

You'd think that with six hours and a big budget to play with, and with two first class SF pros with beaucoup media savvy, Ray Bradbury and Richard Matheson, doing the story and screenplay, not even a commercial tv network could screw up this classic; and ya know something? They didn't. Excessively decent, even! Oh, there are picky stylistic things to carp about, like the off-key electronic music in places or a fake-- looking rocket exhaust here or there, but no major gripes! Now, remember, Bradbury's classic is a f-a-n-t-a-s-y. I was originally going to fill up this column with smartass comments about two-way phone calls to Mars (minimum speed-of- light round trip is thirty or forty minutes) and open water in the canals, and breathable air, and the general dearth of craters. But I can't, because this isn t NASA's and Carl Sagan's Mars, despite the little Viking scene at the beginning; this is the Mars of Lowell and Burroughs and Heinlein-- Barsoom, if you like.

Besides good writing which they had, and time enough to do justice, which they had, a network production needs good acting, which they really surprised me with. The Narcissistic woman in the beauty shop, with her million dollar body and two-bit arrogance was great, probably an improvement on the original, who was simply fat and selfish. The women who played the Doctor's robot wife and daughter deserve real kudos. Father Peregrine was almost Duntemannesque in his spiritual intensity, and even Rock Hudson and Darrin McGavin, and so help me, even Roddy McDowell, did a good, solid, professional job. Now, no movie creator's vision of a classic not even with the help of Ellison's Jefty, is going to match a reader's preconceived vision right down to the last decimal. This is more difficult because of the updating of the story. When you go back in time to the 1950's, when the story was written to the Elmwood, Illinois of the past, you're doing something a bit different then going from the 1980's. The biggest change from the original is the racial situation; all those shuffling, watermelon - eating, chilluns wit' razors in dere shoes that marched out of the Jim Crow South of the 50's to Mars have been left out. On the other hand, Spender becomes a Black crew member. Such are the effects of thirty years on a classic. Also, Ylla's husband traded in his bee gun on a blaster, and we didn't get see the flame birds pulling the chariot.... Rat Tiec!





(PBS) THE LATHE OF HEAVEN--AS SEEN FROM THE TAILSTOCK OF PURGATORY.

The point of this show is: if you're going to play solipsist head games, and suggest chnages in the world to a psychiatric patient who claims to have reality--bending powers, be careful if the dude is a science fiction fan, or else you're going to be up to your nipples in Jukebox Aliens and planet-busting nuclear wars. And Oregon is just plain crawling with science fiction fans, not to mention Damon and Kate and hordes of psychotic Clarionoids.

Who says they aren't putting anything worth watching on the tube anymore? From Bradbury's excessively Phreudian Phallic rocketships and George Barr's Radioactive Ravings, it's just a short step downward to:

Galactica: 1980 --- The Invisible Time Travelers versus Hogan's Heroes 'Fugitive'

Time Tunnels on TV can be fun, and they're cheap to do. Some of the best laughs in Star Trek came from crew members schlepping around on Ancient Nazi Planets, Or Gangster Chicago Planets, or New York on the Edge of Forever. The 1944 North Baltic Germany background was fairly well worked ot, and it's nice to see that somebody will be getting some mileage out of the whiz-bang warp drive, now that Nimoy seems to be unwilling to ever don his Borrible Ears again on the airwaves.

Still, why does the girl Jamie, look like Pam Dawber on Mork and Mindy? For that matter, why does Gil Gerard look like a slightly chubbier Lee Majors?

The color TV's and computer terminals get in the way, and besides, if this is supposed to be modern or near-future London, the Borrible gangs would be ruling the Underground tubes. If nought else, why not just take a taxi to the rat people's bunker complex, and why not fetch along a couple of sten guns while you're at it?

Getting away from the Mediamumblesheets for a minute, I have a couple of technical questions: What happens, Bill when a neutrino hits the wall of a Larry Niven Stasis field? Does it bounce off, or just stop at the interface, or what? Also, what happens if there a Quantum black hole or something inside of same? Does the gravity leak through? It seems to me that space ships with Niven Shields still behaved normally ballistically, and could be carried around with minimal inertial effects. What I'm getting around to, is maybe you could take a fairly large double-walled vessel, like a lab dewar, with a very narrow opening in the throat and fill it with fissionable materials, tritium, lithium deuteride, and such stuff, but not nearly enough for an explosive critical mass under normal conditions. Then you energize the double wall vessel with a Niven field, and a thin squirt of really hot, dangerous shit comes out the nozzle real fast! Would make a really neat fast breeder/blaster /rocket/flashlight/cutting torch, etc. To turn it off, you'd either have to let it burn out or else enclose the whole in a second stasis field and damp it out. Whaddya think? I'd like to use this as a gimmick in a story, but I'm wondering.... ((don't do it, George! We don't want to lose you to the ARMs. BL))

EVERYTHING BUT THE KITCHEN SYNCHROTRON

BILL HIGGINS

Since I came to work at Fermilab two years ago, I've had a couple of choices whenever I have been asked, "What do you do out there?" I can smile and say, "I smash atoms for a living." Or I can draw a deep breath and launch into an elaborate explanation...

The Fermi National Accelerator Laboratory was constructed in the early seventies to help investigate elementary particles at energies higher than any previous accelerator could produce. A chain of smaller accelerators speeds up protons to an energy of eight billion electron volts and injects them into the Main Ring. This is a vacuum pipe passing through a circle of magnets and other equipment in an underground tunnel, about four miles in circumference. It can accelerate protons to over 400 billion electron volts (abbreviated 400 GeV). Since the "M C squared" of a proton at rest is about one GeV, the energy of motion of the Fermilab protons is enormous. In fact, they are moving at 99.9997% of the speed of light.

My job is primarily to accept the protons after they have left the Main Ring, to use them in making neutrinos and other exotic particles, and to throw them at various experiments set up by underpaid professors and eager graduate students at the end of my beam pipe, a mile from the Main Ring. This is simply an extension of a game physicists have been playing since the turn of the century. It's called "scattering," and it involves tossing some kind of projectile at a target, and observing the particles that emerge from the collision. Experimenters measure the speed and direction of these emerging particles, and careful analysis gives them information about how their target is put together and what goes on inside it.

Dick Feynman has remarked that this is like studying the construction of Swiss watches by banging them into each other at high velocity, and observing the pieces that fly out. This technique has brought physicists remarkable progress in understanding the structure of matter, notwithstanding Feynman's somewhat depressing analogy. And nobody has yet suggested a better method for learning about the way atoms are built. (Perhaps we could ask one?)

An important feature of scattering experiments is that study of a smaller system involves disrupting more powerful bonds; in other words, the more powerful the forces which hold a system together, the closer its constituents will be to one another, and the more energy is needed to blow it apart. This is why physics investigated first atoms, later atomic nuclei, and still later the "elementary particles" found within nuclei. As the scales of these experiments have diminished, the accelerators necessary to provide the projectiles have grown in energy, size, and cost, generally as fast as the technology has developed to build them.

The variety of beams which accelerators can deliver to customers has also increased. Not only the familiar protons and electrons, but such uncommon particles as kaons, positrons, pions, and muons may be used as projectiles. Each of these illuminates a specific aspect of particle physics. Fermilab is one of only three or four places on this planet which can produce a beam of those most bizarre of all known particles, neutrinos.

In the 1930's Wolfgang Pauli and Enrico Fermi managed to explain certain kinds of radioactivity only by assuming a particle with no charge and negligible mass. The properties it did have were energy, momentum, and spin. Dubbed "neutrino," the little rascal proved so elusive that it took until the late fifties to find one. A neutrino is so unlikely to interact with matter that a piece of lead a billion kilometers thick has about a fifty-fifty chance of absorbing one. All other known particles will be stopped nicely by less than ten kilometers of material; a deep mine keeps out all but the most determined of cosmic rays.

Neutrinos are so hard to catch because they are unaffected by both electromagnetic forces and by the "strong nuclear" interaction, the one which keeps protons and neutrons together in nuclei. Neutrinos take part only in the much more feeble "weak nuclear" interaction. Moreover, they are the only particles which ignore the two stronger forces. Therefore, an experiment using neutrinos as projectiles could extract information about the weak interaction which could not be obtained in any other way, and which would not have to be untangled from the effects of other interactions.

In order to gather any useful data at all, such a neutrino experiment must increase the probability that an interesting neutrino-induced collision will actually take place in the apparatus. This means either building a detector with very large mass or assaulting it with a huge number of neutrinos. In practice both methods are employed. Neutrino detectors range in mass from one ton for a hydrogen-filled bubble chamber to several hundred tons of steel plates or iron shot, interspersed with position-sensitive or energy-sensitive instruments. Meanwhile, the experimenters confidently expect that my colleagues in the Neutrino Department will provide them with a billion or so neutrinos every time the accelerator is pulsed, four or five times each minute, six days a week, for several months at a stretch. If we pour enough neutrinos through their apparatus, we can beat the long odds against the interception of any single one. Typically we can expect one of the neutrinos to cause a detectable "event," or collision, once or twice per pulse.

How do we turn a machine pulse of near-lightspeed protons into a beam of neutrinos? The diagram gives a schematic outline of the Neutrino Area. Emerging from the Main Ring, the 400-GeV protons pass through a region aptly named Switchyard, where the beam is divided into portions and sent to each of the three experimental areas, Meson, Neutrino, and Proton. Ten trillion or so of the protons enter the Neutrino target hall, a long underground building where magnets mounted on narrow-gauge railroad flatcars steer and focus them onto the target.

The target itself is a water-cooled brick of some material, such as tungsten or beryllium oxide, which can stand considerable thermal shock. Each of the protons carries almost half an erg of energy, so a total of 150,000 calories lands on a spot a few millimeters square, in less than a millisecond. This can do a lot of heat damage if not carefully controlled, not to mention making the target horribly radioactive.

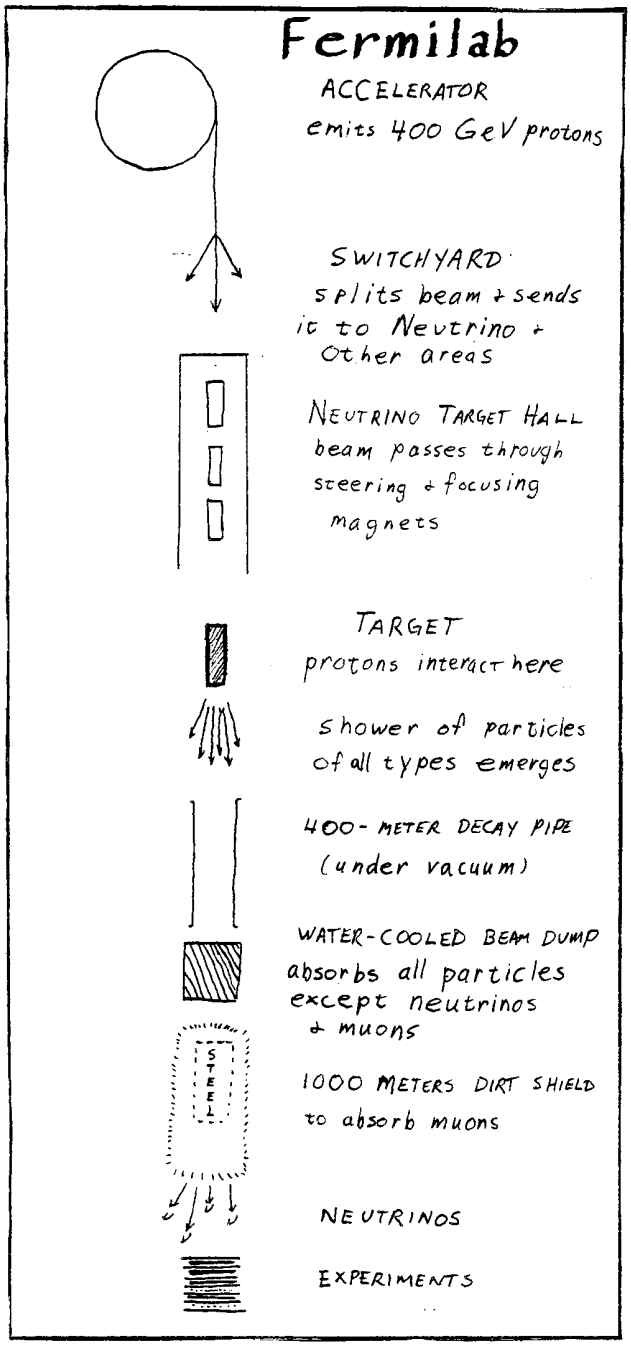
Sixty percent of the protons pass through the target without interacting. The rest collide with nuclei of the target's atoms. With several hundred GeV to play around with, energy can turn into mass and vice versa during these encounters, and plenty of new particles of all types are created. Out of the downstream end of the target comes a shower of bizarre particles and protons in a narrow cone.

Many of the new particles are pions or kaons, both unstable particles with a half-life around 10E-8 seconds. These decay into a muon and a neutrino most of the time, so if they are allowed to fly along undisturbed for a while, a rich crop of neutrinos can be harvested. For this reason, after passing through the post-target train, the pions and kaons traverse a 400-meter pipe, a meter in diameter. Unfortunately, because they are moving at relativistic speeds, they experience a slower time rate than observers in the laboratory's frame of reference. This means that they appear to live longer. Only a few percent of the particles manage to decay in the "decay pipe;" if they were moving slowly, nearly all of them would do so. At the end of the decay pipe the remaining particles are absorbed in a water-cooled aluminum dump, but the neutrinos, of course, hardly notice a few meters of metal and pass right through.

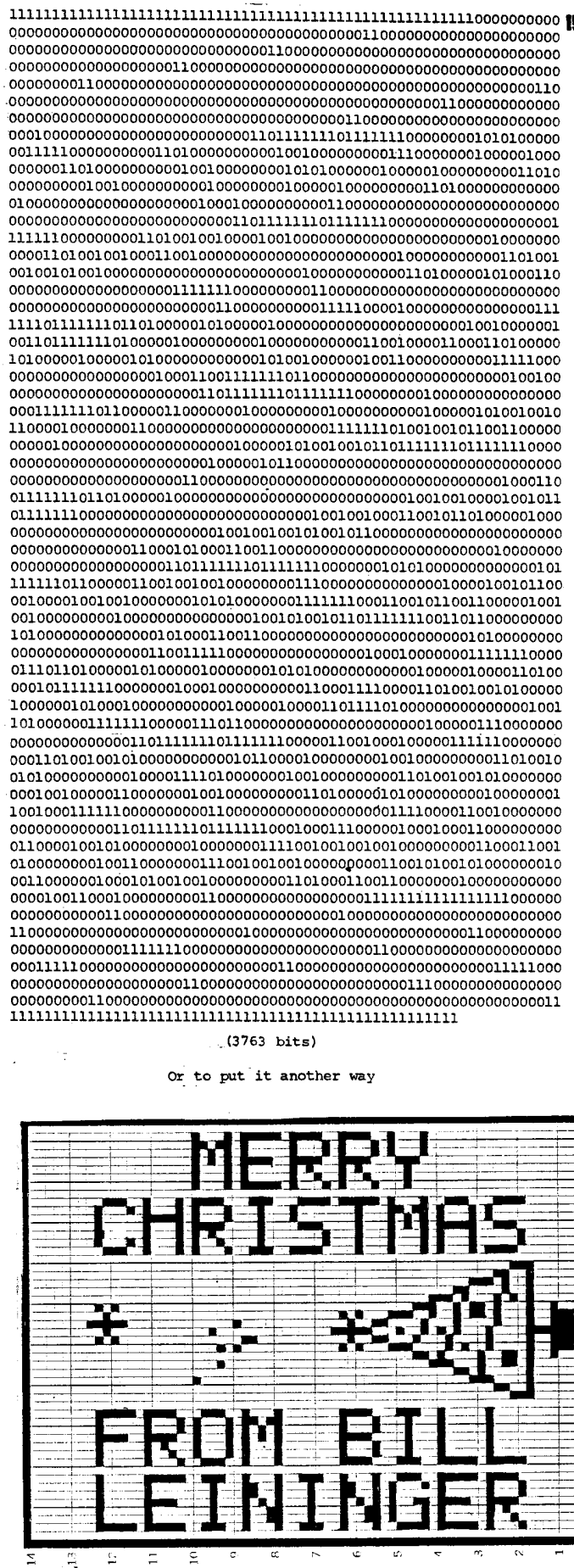
Accompanying the neutrinos are muons, which are produced in each decay and which are pretty hard to stop themselves. To discourage the muons from entering the experiments we've piled a kilometer of dirt, with some steel buried in it, downstream of the decay pipe. This works well, and very few muons penetrate the entire length of the shield. So a nearly pure beam of neutrinos arrives at the detectors.

On the railroad cars just downstream of the target, before the decay pipe, a variety of magnets can be placed in order to control the character of the final neutrino beam. Positive kaons and pions can be removed from the beam before they decay, leaving only negative particles which give rise to antineutrinos. Then the effects of neutrinos and their antiparticles can be studied, on different runs, in the same detector. Or pions and kaons in a narrow momentum range can be selected by the magnets, giving experimenters information about the initial momentum of their neutrinos. Or the beam can be focused to increase the number of neutrinos of all momenta arriving at the experiments.

During a typical running period of three to six months, our "customers" might include two or



three experiments using our neutrino beam and one or two using auxiliary beams of pions or whatever. The Proton and Meson areas usually have a similar number of experiments. Several months after the run, at a conference or a Friday afternoon seminar, the experimenters may present some preliminary results. But data analysis usually takes a couple of years to nail down all of the information available from an experiment.



(3763 bits)

Or to put it another way

IGC

Interstellar Greeting Cards
(This card transmitted with 100% recycled microwaves on the 21 cm band.)

RIDING SHOTGUN ON AVENUE 'O'

BY JEFF DUNTEMANN

Wow. Some heavy talent in my home town. Let's hear it for the Galactic Capital! And for everyone involved. You haven't even said you're never going to do it again, which is doubly amazing.

Start gathering material for the next one NOW.

BITS'N'PIECES: A lot of you people are REAL low on stamps. This at a time when just about every GT publication requires two stamps or more; you could be plumb shut gone and not even realize it. If you're not ABSOLUTELY certain that your envelope is bulging, pass me eight or ten. Sadly, like most things of value these days, they don't last long and they always seem to cost more when you renew your supply, but hell, that's life with Big Government.

(Back when I was a college kid and had summers off, I was flying a kite in Grant Park and saw another guy with a home-made kite that said:

POSTAL WORKERS ARE THE MOST PRODUCTIVE!

It was 1 PM on a Thursday afternoon. Sure hope he was on vacation...)

As members of Denvention know by now, the Hugo ballots have arrived. Once again, we put in motion the Put Pyro on the Hugo Ballot Campaign. It can't be that tough; last year, any single fanzine with 33 nominations or more got put on the final ballot. SURELY we can do better than THAT!!! Charlie Brown has too damned many Hugos, and he doesn't even run a fanzine anymore.

So...the General Technics/PyroTechnics Hugo Slate for the 1980 awards is:

Best Fanzine: PyroTechnics

Best Fan Artist: Chris Cloutier, Bill Higgins

Best Fan Writer: George "Zaps" Ewing

Best Pro Artist: Phil Foglio

Your editor had three items appear in print this past year, for which he brazenly solicits recommendations, all short stories: "Cold Hands," in IASFM 6/80; "Ariel," in the anthology Tales of the Marvelous Machine, Taylor & Green, Eds.; and "Guardian," IASFM 9/80. Other GT pro writers were quiescent in 1980, as far as I know; if somebody out there was published professionally, please let me know.

I bent a few noses last year listing my own personal favorites in other categories. I'll only go so far this year as to list 3 novels which many people didn't read because only expensive hardcover editions were available: Wizard, by John Varley; The Shadow of the Torturer, by Gene Wolfe, and Dragon's Egg, by Robert W. Forward. All three are well worth a vote or two. As for the other stuff, fiat voluntas tua.

The GT Electronic Mail Project has grown a bit; Mike Bentley and I now call it THEMIS, for Telecomm/Hardcopy Electronic Mail Interface System. It includes TECHTERM but goes further, and encompasses a phone number/address file system (PHONEDEX); a message editor/compressor (SCRUNCH) and finally, an absolutely amazing SF simulation game called GALAXY, played over the phone, somewhat like long-distance chess, by systems running the THEMIS software. TECHTERM now operates as a dumb terminal program, and GALAXY happily creates whole star systems; not bad for six weeks work.

So here we are, tying the ribbons on 1980. One would hope it's the end of the beginning, and not the beginning of the end. Sometimes it's hard to tell the difference. In my future history, denizens of the Third Millennium refer to the 20th Century as The Convulsion; a unique, remarkable time: History's Big Squeaker. If we live through it, there will be no end to us; if we blow it, that's it--forever.

You may say you, the individual, can't effect the outcome. Not dramatically, perhaps, but in tiny ways maybe, just maybe--think, then: if we survive, YOU will have been part of the fulcrum, the pivot point on which all human history turned from ruin to glory. YOU may have given it just enough oomph to kick it over the balance.

So try, my friends, TRY. Pester the hell out of your representatives to support the Space Program. To support fusion research. Practice rationality, battle stupidity, reach for wisdom, and keep your sense of humor. Perhaps this isn't The Future yet--but there will never be another age like the Twentieth Century, nor one more crucial, and we are all the Twentieth Century has going for it; nay, its last hope.

We will be the stuff of legend a thousand years hence--The Ones Who Saved It All. Have courage, my friends, in this New Year; then go out and change history!

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GT